



US005576502A

United States Patent [19][11] **Patent Number:** **5,576,502****Fukushima et al.**[45] **Date of Patent:** **Nov. 19, 1996**[54] **POINTING UNIT AND IMPROVED STYLUS PEN***Attorney, Agent, or Firm*—Joseph W. Berenato, III[75] Inventors: **Yasuyuki Fukushima; Minoru Wakabayashi**, both of Otone-machi, Japan[57] **ABSTRACT**[73] Assignee: **Wacom Co., Ltd.**, Japan

The invention relates to a pointing unit adapted for a stylus pen associated with a coordinate data input device which has been commonly used as one of some input devices for a computer system. This pointing unit comprises a casing formed in a substantially cylindrical shape; a support member installed in the interior of the casing, the support member being limited to move in the reverse direction of one end opening of the casing; a cap member formed in the same cylindrical shape as the casing, the external diameter of the cap member being slightly smaller than the internal diameter of the casing, one end of the cap member being formed in a dome shape and arranged close to the end opening so as to protrude a predetermined length of the dome shape end from the end opening of the casing, the cap member being limited to move in the outward direction and on the contrary freely sliding in the inward direction; a core member made of magnetic material arranged close to the inner surface of the dome shape end of the cap member; a coil member made of magnetic material, interposed between the core member and the support member; and an elastic member arranged in a narrow space defined between the coil member and the inner surface of the dome shape end of the cap member to urge the cap member outward in the reverse direction with respect to the coil member so that the dome shape end of the cap member is protruded some length from the opening end of the casing.

[21] Appl. No.: **529,545**[22] Filed: **Sep. 18, 1995**[30] **Foreign Application Priority Data**

Jun. 6, 1995 [JP] Japan 7-162866

[51] **Int. Cl.⁶** **G08C 21/00**[52] **U.S. Cl.** **73/862.68; 178/18**[58] **Field of Search** 73/862.041, 862.541, 73/862.69, 865.7; 364/709.11; 178/18[56] **References Cited****U.S. PATENT DOCUMENTS**

4,878,553 11/1989 Yamanami et al. 178/18
 4,988,837 1/1991 Murakami et al. 178/18
 5,134,689 7/1992 Murakami et al. 178/19

FOREIGN PATENT DOCUMENTS

5275283 10/1993 Japan .

Primary Examiner—Richard Chilcot*Assistant Examiner*—Ronald Biegel**13 Claims, 8 Drawing Sheets**